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What is wrong with Romanian Livestock Guarding Dogs? A Discussion

by

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Introduction

Romania is one of the few places in Europe where livestock guarding dogs (LGDs) are still commonly used. This is because the coexistence of livestock and wild predators (wolves *Canis lupus*, bears *Ursus arctos* and lynx *Lynx lynx*) has encouraged the maintenance of traditional damage prevention methods.

In most of the livestock camps in the mountains the sheep are grazed on pastures interspersed in the forest. The pastures are of very variable sizes and in several cases sheep are grazed in the vicinity of the forest edge. Although it is forbidden, the flocks often enter the forests to graze, also because many pastures that are used by the same herd are separated by forested areas. Once they are brought back to the camps in the evening, the flocks are kept in close proximity of the camp, either penned or free. In most cases at least the ewes are penned at night, usually in wooden corrals/enclosures (Figure 1). Also the other animals are kept in the vicinity of the camp. The cattle and pigs are sometimes penned whereas horses



Fig. 1: Typical Romanian livestock camp with wooden enclosure. (Photo: Annette Mertens)

and donkeys are tied up in the vicinity of the hut where the shepherds live. By day the flocks are always accompanied by at least one shepherd and by a number of livestock guarding dogs. Some shepherds in the camps are specially hired for taking care of the sheep (while others may have the responsibility for other tasks such as milk processing). They sleep in wooden boxes or on the ground near the flock. When they are alerted by the dogs they are supposed to chase potential predators with torches and sticks.

Many specialists agree that LGDs are essential for effective damage prevention (Coppinger & Coppinger 1980; Andelt 1999, Smith et al. 2000). The success of the use of such dogs in Romania is also demonstrated by the results of a 5-year study made in the Carpathian Large Carnivore Project (CLCP) which has shown that the number of sheep killed by wolves and bears in mountain livestock camps increased with an increasing sheep to LGD ratio ($p = 0.007^1$) as well as with an increasing sheep to shepherd ratio; ($p = 0.049^2$). This confirms what has already been observed many times both in the USA and in Europe (Robel et al. 1981, Stahl et al. 2001).

However, if the linear regression analysis was performed separately for wolves and bears the relationship between number of dogs and number of kills appeared to exist only for wolves ($p = 0.007^3$). In other words, only wolf attacks decreased with increasing LGD and shepherd numbers, whereas numbers lost to bears remained unchanged. The reason for this is not clear because in the reported study we did not analyse the differences in the predatory patterns of wolves and bears. However, an explanation could be found in the following fact: although a correlation existed, in the Romanian

study LGD numbers in the flocks increased more slowly than sheep numbers. Therefore, large flocks were guarded by comparably less dogs than small ones. This might be the explanation for the missing correlation for bear kills, as bear attacks commonly seem to be more independent of flock size (Sagor et al. 1997) whereas wolves appear to be more attracted by large flocks (Mech et al. 2000).

Regardless of the difference we found in the influence of the presence of dogs and shepherds on wolf and bear we did not observe any significant difference in the number of sheep killed per attack by bears ($N = 1.47$) and by wolves ($N = 1.56$) ($p = 0.196^4$).

Livestock guarding dogs

There is no information on the quality of used LGDs in Romanian livestock camps before and during the communist regime. However, in the study performed by the CLCP, all the 115 analysed livestock camps had LDGs with their sheep. In Romania there are three LGD breeds, the *Ciobănesc Român Carpatin* (*Carpathian Shepherd Dog*; Figure 2), the *Ciobănesc Român Mioritic* (*Mioritic Shepherd Dog*; Figure 3) and the *Ciobănesc Român de Bucovina* (*Bucovinian Shepherd Dog*) for which the Romanian Canine Association is making efforts to achieve registration in the FIC (Federation of International Canines). These are ancient breeds and it is likely that these dogs have been commonly used by shepherds until not too long ago.

Still, depredation occurs and actually in the CLCP study 1.29% of the sheep present in the monitored flocks appeared to have been killed by wolves and bears. It seems questionable why flocks are still vulnerable although they were always



Fig. 2: Dogs commonly found in livestock camps, showing similarity to the *Ciobănesc Român Carpatin*. (Photo: Annette Mertens)



Fig. 3: Dogs commonly found in livestock camps, showing similarity to the *Ciobănesc Român Mioritic*. (Photo: Annette Mertens)

¹ We have used a simple linear regression after normalizing the data ($N = 88$ camps, $R^2 = 0.04$; $F_{1,86,95\%} = 7.58$; $p = 0.007$).

² ($N = 87$ camps, $R^2 = 0.04$; $F_{1,85,95\%} = 3.96$; $p = 0.049$).

³ ($N = 87$, $R^2 = 0.044$; $F_{1,85,95\%} = 7.58$; $p = 0.007$).

⁴ ($\chi^2 = 1.81$; df. 1; $p = 0.196$).

guarded by LGDs. The reason for this is what we want to analyse in the present article.

LGDs become victim of wolves

Problems in damage prevention can appear where LGDs not **only** do not manage to prevent carnivores from attacking the livestock, but are even themselves the victims of wolves. This appeared evident in a case that was analysed by the CLCP in the county of *Brasov*. Cases of wolf predation on dogs were analysed in seven villages on the foothills of the *Bucegi* massif, from January 2001 until October 2002.

The study area covered roughly 235 km² and consisted of three communities: *Bran* (approx. 1905 households), *Moeciu* (approx. 978 households) and *Fundata* (approx. 189 households). We refer to an individual household as a person or a family group who share the same budget, their house, stables and land. Most of the households own hay meadows, used for livestock grazing or hay production, which are either situated on the slopes behind the houses or in the neighbouring villages (Figure 4).

From January 2001 to October 2002 wolves were reported to have attacked livestock in 149 households on an area of 69.9 km², killing 62 sheep, 7 cattle, 1 kid, 2 foals and 186 dogs (157 adult LGDs, 2 pups and 27 small dogs (herding dogs)). Dogs were killed in 137 households, other livestock in 24. The amount of attacks per household ranged between 1 (74%) to 2 (17%), exceptionally up to ten. Only four attacks (2%) were unsuccessful in with the animals were neither injured nor killed. The amount of animals attacked per household ranged between 1 to 14 animals. In most of them one animal was attacked (65%) and in only 5% between 5 and 14 animals.

Livestock as victim of wolves

The amount of attacks varied within the survey period: In 2001 the number of attacked livestock ranged between 1 and 4 per month, except August and October with high numbers of attacked animals (12 and 9 respectively). These high numbers were due to persistent attacks on only 3 households. Simi-



Fig. 4: Typical household in the study area in the county of *Brasov*. (Photo: Annette Mertens)

larly, in 2002 the number of attacked animals ranged between 1 and 6 per month, with an exceptionally high number in April (19) due to persistent attacks on 4 households.

59% of the attacks happened during the day, 32% at night and 9% at dusk or dawn; the high amount of attacks during daytime was mainly due to the absence of the homeowner and the poorly trained dogs. In 79% of the cases the animals were running free, in 19% they were in a wooden enclosure. Only 2% were killed in a stable, which seemed to be the most effective protection against predators. The LGDs were near the animals in 77% of the attacks whereas only in 23% of all cases were LGDs absent.

Dogs

Dogs were attacked throughout the whole year, ranging from 1 to 6 animals per month, with peaks in January, September, October, November and December in 2001 and in January, February, March and April in 2002. During these attacks all but 3 dogs were killed: 84% were adult LGDs, the rest were small dogs and pups. The share of dogs running free out of all killed ones (52%) was similar to the range of those that were chained up (48%). 91% of the attacks on dogs occurred at night followed by those at dusk or dawn (6%) and the ones during the day (3%).

The amount of dogs in the households that suffered attacks ranged from 1 to 15: in most of them there was one (39%) or two dogs (33%). Although

we did not find significant correlation (Spearman correlation) between these factors, this suggests that wolves preferred households with lesser dog numbers, which agrees with the finding that numbers killed sheep decrease with increasing relative numbers of LGDs (Par. 1).

We found no significance when we tested for Spearman correlation between the amount of attacked animals and the distance of the household to the forest or to the border of the village. However, we found that the most affected households were remote and close to the forest and therefore easily accessible for the wolves. In most of the cases in which the attack was observed by the owners or their neighbours, people reported that the wolves attacked outside the forest, killed the animals and tried to escape with their kill into the forest.

The attacks were not analysed by trained people; as killed animals are not compensated the damage is usually not reported to the authorities. However, clear evidence existed in 51% of the cases that the predators were wolves: the household owners either directly observed the attack or heard the attack or they found tracks. In the other 49% of the cases there was no proof that the predator was a wolf but we assume that this was the case. The assumption is based on the following facts:

The monitored wolf pack had its rendezvous-site near the village of Simon, the village that suffered the most attacks. The rendezvous-site of the pack was close to the border of the village (2.2 km) and the nearest frequently used forest-road (860 m). In addition, the radio-tracking data showed, that the home range of this pack corresponded approximately to the area of the villages that suffered the attacks (CLCP unpubl. data).

Also, during the analysis of wolf scats that were found while tracking the wolf pack found dog hair and skin and dog claws (Barbara Promberger-Fürpaß unpubl. data).

For this reason we also believe that the high amount of killed LGD cannot be explained with territorial conflicts: 77% of the LGDs that were killed were near the livestock, which was left unhurt, whereas in almost all cases about 80 to 100% of the killed dog was consumed (Figure 5).

Socio-economic changes

Causes of conflict can also be found in the socio-economic situation of Romanian agriculture. Until the late 1970's every household in rural areas owned at least one dog, usually kept in people's gardens.



Fig. 5: The remains of a livestock guarding dog killed by wolves. (Photo: Annette Mertens)

But during the last years of the communist regime a strong “rationalisation” occurred in Romania: in order to use the national territory as effectively as possible, families in rural environments were resettled into apartment blocks while their houses with courtyards and orchards were destroyed and the land was turned into arable land. The families could not keep their animals in the apartments, and as a result during that period millions of dogs were abandoned, turning into stray dogs. The number of these dogs has grown throughout the years and, although it is not known how many there are, they nowadays represent a serious problem in the country. Many LGDs, whose breeding activities are not controlled by shepherds, freely mate with such stray dogs, giving birth to litters that are then used for guarding the livestock. Generations of such uncontrolled breeding has led to the present situation where almost no pure breed LGDs exist. The commonly used dogs are slightly smaller than the pure-breed ones, weighing some 25-35 kg. The guarding skills of such dogs are very variable among different camps.

The dogs are never actively trained by the shepherds. Rather, as soon as they are big enough to follow the sheep the pups are put in the flocks and

thus are expected to learn their job from the other dogs. This is one major issue that influences the quality of these dogs: The dogs that prove to be good LGDs are those that are part of a group (often a family group) of dogs, that are kept together with the livestock also during winter and thus maintain their socialization throughout. However, many dogs are kept alone on a leash throughout all the fall and winter, in the courtyards of livestock owners. In summer they are taken to the mountain camps and are supposed to guard the livestock together with the other dogs. This often fails because these dogs do not have the possibility to develop and maintain their socialization with the sheep and the other dogs and because they do not have the possibility to learn how to coordinate themselves with the other dogs. Furthermore, often these dogs are not accepted by others, already present groups of dogs, which work as packs.

There is no law that specifically regulates the use of LGDs. The national veterinary service does not check the health status of dogs. Therefore, most of the LGDs are not adequately vaccinated and treated, which results in a high number of sick and weak dogs in the camps. On the other hand, according to the law of hunting grounds and game protection (103/1996) in mountain areas a maximum of 3 LGDs can be kept with each flock, whereas on the lowlands a maximum of 2 can be kept.

Another real problem is probably the increasing poverty of small livestock breeders due to poor competitiveness of this sector on the international market. Cheese, the main product of traditional livestock breeding, cannot be exported to EU Member States at present unless substantial investments in infrastructure are made to meet the rigorous EU hygiene, welfare, and quality requirements. On the other hand, the competition of foreign imported products is decreasing the market for local cheese on the national level.

Therefore, the net income from extensive livestock raising decreases constantly and shepherds are becoming increasingly poor. The purchase and maintenance of good quality dogs is beyond the means of many people. Furthermore, for economic reasons in the camps, the dogs are commonly fed only "mamaliga" – a cornmeal puree – and whey from the milk, and are rarely fed meat. Therefore many dogs are undernourished and weak, which makes them less self confident and increasingly scared of predators. Moreover, many of the dogs leave the flocks for long periods to search for additional food.

Conclusions

The percentage of livestock killed by carnivores in the present study is not big if compared with other situations (Sagor et al. 1997; Fourli 1999; Poulle et al. 1999; Carrasco Gomez 2002). However, in most European situations in which the damage is higher this is in part due to the fact that in these areas the use of damage prevention methods has been totally or partially abandoned. This is not the case in Romania, which is why in this country a very low level of carnivore-livestock conflict occurs. However, it appears that the traditional prevention methods are not always optimally used.

Although the phenomenon of wolves killing dogs can affect the quality of damage prevention, we believe that the present case was probably an isolated one of a wolf pack having specialized on preying on dogs. Thus, we believe this cannot be identified as the main problem in damage prevention. Rather the vulnerability of livestock is probably due to a combination of several socio-economic problems. In fact, it appears obvious that a high number of LGDs does not itself represent an effective solution unless the socio-economic conditions of livestock raisers will allow them to keep the dogs adequately. This includes maintaining pure-bred dogs, taking proper care of the dogs, feeding them proper food, and "training" (allowing for the effective creation and maintenance of socialised animals) them adequately. The fact that the law only allows for a maximum of 3 LGDs in the livestock camps is probably not a real problem at present as this regulation is usually not followed – in most camps there are over 3 LGDs (in the present study there were 7.5 ± 2.9).

An adequate strategy for reducing damage to livestock would imply:

- A legal background that promotes the conservation of extensive livestock breeding techniques and adequate damage prevention methods
- An agricultural and rural development policy that supports better marketing conditions for small livestock producers
- An infrastructure that supports the livestock raisers in assuring the sanitary and veterinary treatments of LGDs
- A governmental strategy to drastically reduce the numbers of stray dogs in the country

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The *Karakachan Dog* - Continuation of an old Bulgarian Tradition

by
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Introduction

The *Karakachan Dog* (Figure 1) is the breed which has been traditionally used in Bulgaria for centuries for both the protection of livestock and property. *Karakachan Dogs* work well with sheep, goats and cattle against wolves *Canis lupus*, bears *Ursus arctos* and golden jackals *Canis aureus*. The 50 years of socialist regime in Bulgaria almost exterminated this breed, which happened with many other native breeds.

I can not explain the exact reason, but these dogs impressed me a lot during my childhood. Working beside my grandfathers who had sheep I had the possibility to have direct contact with these dogs in their natural environment. 13 years ago my brother and I started to seriously work on this breed and started breeding such dogs. Searching for the last dogs left with the flocks and finding all the information that existed about the breed turned into a kind of mania for us. The hundreds of expeditions and meetings with shepherds and their dogs are the base on which we build up our knowledge of the working *Karakachan Dog*. A lot of dogs passed through our hands. We purchased them from shepherds. They are the base of the breeding work in our breeding station. Not all these original dogs are live anymore, but they



Fig. 1: *Karakachan Dog*. (Photo: Atila Sedefchev)